



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

AUG 16 2011

REPLY TO THE ATTENTION OF:
WN-16J

**Bruno Pigott, Assistant Commissioner
Office of Water Quality
Indiana Department of Environmental Management
Post Office Box 6015
Indianapolis, Indiana 46206-6015**

Dear Mr. Pigott:

As you are aware, point source discharges of phosphorus and nitrogen (nutrients) to surface water can cause aquatic plants and algae to become a nuisance, produce toxic cyanobacteria, and increase water treatment costs. In addition, plant and algal respiration and decomposition can reduce oxygen below levels that are safe for fish and aquatic life. The U.S. Environmental Protection Agency has become increasingly concerned about the impact of nutrients on water quality, including impacts downstream from outfall locations.

EPA recently reviewed our files for 23 Indiana point sources (list enclosed). The files generally contain fact sheets and National Pollutant Discharge Elimination System (NPDES) permits for the sources. The review showed that the Indiana Department of Environmental Management (IDEM) generally includes narrative effluent limitations for nutrients in permits. Consistent with the water quality criterion in 327 Ind. Adm. Code 2-1-6(a)(1)(D), the limits provide that at all times the discharge from any and all point sources specified within the permit shall not cause receiving waters "to contain substances which are in concentrations or combinations that will cause or contribute to the growth of aquatic plants or algae to such a degree as to create a nuisance, be unsightly, or otherwise impair the designated uses." With the exception of one permit, IDEM did not set numeric limits for nutrients based on the narrative criterion at 327 Ind. Adm. Code 2-1-6(a)(1)(D), nor did IDEM include a numeric nutrient limit in the permits to assure attainment of the dissolved oxygen criterion at 327 Ind. Adm. Code 2-1-6(b)(3)¹. Moreover, none of the permits prescribe the effluent and receiving water monitoring needed to determine compliance with the narrative effluent limits. Under 40 C.F.R. § 122.44(i) (made applicable to states by 40 C.F.R. § 123.25(a)), permits need to require monitoring to assure compliance with effluent limitations. It is unclear how IDEM (or a discharger) would determine compliance given that a violation of the limit occurs only when a discharger causes substance(s) to occur in concentrations or combinations that will cause or contribute to a nuisance, unsightliness, or other impairment of uses.

¹ The criteria at 327 IAC 2-1-6(a)(1)(E) and (2) may also apply when evaluating nutrients. In general, the criteria provide that waters shall be free from substances in concentrations that alone or in combination with others are toxic or harmful to human health or to animal, plant, or aquatic life.

As you know Sections 301 and 402 of the Clean Water Act (CWA) require NPDES permits to include effluent limitations as needed for discharges to meet water quality standards. The regulation at 40 C.F.R. § 122.44(d) (made applicable to states by 40 C.F.R. § 123.25(a)) implements this section by requiring a permit-issuing agency to: (1) determine whether point source discharges will cause, have a reasonable potential to cause, or contribute to an excursion beyond applicable water quality criteria; and (2) set water quality-based effluent limitations in permits when the agency makes an affirmative determination. The regulation applies whether the relevant criteria are expressed numerically or in a narrative fashion. For narrative criteria, subparagraph (1)(vi) in the regulation provides three methods for setting numeric effluent limitations in permits:

1. Calculate a criterion based on a proposed State criterion or an explicit State policy or regulation interpreting its narrative criterion;
2. Set the limit based on EPA's CWA section 304(a) recommended criteria supplemented, where necessary, by other relevant information; or
3. Set the limit on an indicator parameter.

IDEM's practice of setting narrative effluent limits for nutrients does not satisfy 40 C.F.R. § 122.44(d) because it is possible to set numeric limits based on method No. 2, above, using CWA Section 304(a) criteria for nutrients, supplemented by the other information such as IDEM's draft Lakes criteria and streams analysis results.

EPA expects that IDEM will follow 40 C.F.R. § 122.44(d) when it develops permits for nutrient discharges. Specifically, IDEM must: (1) determine whether nutrient discharges will cause, have a reasonable potential to cause, or contribute to an excursion beyond the criterion in 327 Ind. Adm. Code 2-1-6(a)(1)(D) in proximate and downstream waters; and (2), when it makes an affirmative determination, set numeric nutrient effluent limitations which are derived from and comply with 327 Ind. Adm. Code 2-1-6(a)(1)(D). In addition, IDEM must: (1) determine whether nutrients, either alone or in combination with carbonaceous biochemical oxygen demand (CBOD) and ammonia, will cause, have a reasonable potential to cause, or contribute to an excursion beyond the dissolved oxygen criteria in 327 Ind. Adm. Code 2-1-6(b)(3) in proximate and downstream waters; and (2), when it makes an affirmative determination, set numeric nutrient effluent limitations which, either alone or in combination with limits on CBOD, ammonia, and/or dissolved oxygen, are derived from and comply with 327 Ind. Adm. Code 2-1-6(b)(3). If reasonable potential is found for nutrients based on both of the criteria identified above, the more stringent of the two nutrient water quality-based effluent limitations should be included in the permit.

Beginning not later than January 1, 2012, EPA will review NPDES permits under section 402(d) of the CWA and 40 C.F.R. § 123.44 to confirm that IDEM is fulfilling the requirements described above. Under these provisions, EPA can provide comments or recommendations on, or object to, NPDES permits. A State cannot issue a permit in the face of an EPA objection.

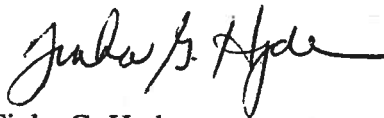
When making determinations, 40 C.F.R. § 122.44(d) requires permit-issuing agencies to use procedures that account for existing controls on point and nonpoint sources of pollution, the

variability of the pollutant or pollutant parameter in the effluent, and, where appropriate, the dilution of the effluent with the receiving waters. EPA asks IDEM to establish procedures that it will use when making determinations relative to nutrient discharges and 327 Ind. Adm. Code 2-1-6(a)(1)(D) and 2-1-6(b)(3), and to provide a draft of the procedures to EPA for review by November 15, 2011. In addition to addressing the topics identified in the first sentence of this paragraph, we ask that the procedures identify the method that IDEM will use to set effluent limits based on a numeric expression of the criterion in 327 Ind. Adm. Code 2-1-6(a)(1)(D). Through a review and subsequent dialogue, we hope to reach agreement with IDEM on the final procedures and method, thereby reducing the possibility that EPA may object to Indiana permits. Within 30 days of this letter, please confirm that IDEM will provide draft procedures and a method by the date requested.

As of September 2010, IDEM's proposed plan was to recommend that the Indiana Water Pollution Control Board adopt numeric nutrient criteria for reservoirs and lakes by December 2011 and for rivers and streams by 2013. So far in 2011, IDEM made substantial progress on its lakes criteria rulemaking and is preparing an analysis with the U.S. Geological Survey of recent stream and river nutrient data. The analysis should be completed this summer. While working to develop numeric water quality criteria, IDEM must ensure that NPDES permits are issued with conditions that achieve the current applicable water quality standards, including narrative criteria as required by 40 C.F.R. § 122.44(d). EPA envisions that IDEM could use the draft lakes criteria and the streams analysis results as a basis for implementing its narrative nutrient criteria in NPDES permits by late 2011.

EPA is committed to working with IDEM to protect Indiana waters from nutrient pollution. The enclosed materials may be helpful in this regard. If you have any questions, please contact me or Kevin Pierard, Chief, NPDES Programs Branch, at (312) 886-4448.

Sincerely,



Tinka G. Hyde
Director, Water Division

Enclosures

NPDES ID	Facility Name
IN0020044	ALEXANDRIA WWTP
IN0032476	ANDERSON WWTP
IN0021296	ANGOLA WWTP
IN0035726	BLOOMINGTON N (BLUCHER POOLE)
IN0035718	BLOOMINGTON S (DILLMAN ROAD)
IN0022497	CARMEL WWTP
IN0032573	COLUMBUS WWTP, CITY OF
IN0032956	EVANSVILLE WWTP WESTSIDE
IN0032191	FORT WAYNE MUNICIPAL WWTP
IN0020133	GREENSBURG WWTP
IN0023183	INDIANAPOLIS BELMONT AND SOUTHPORT AWTP
IN0032875	KOKOMO WWTP, CITY OF
IN0032468	LAFAYETTE WWTP
IN0020818	LEBANON WWTP
IN0025585	MARION WWTP, CITY OF
IN0023825	MOORESVILLE
IN0025631	MUNCIE WATER POLLUTION CONTROL FACILITY
IN0032867	SHELBYVILLE WWTP
IN0024520	SOUTH BEND MUNICIPAL WWTP
IN0023825	TERRE HAUTE
IN0024741	WABASH MUNICIPAL STP
IN0021024	WINCHESTER WWTP

Some References for Setting Nutrient Effluent Limitations

Permits, practices or rules

U.S. EPA Region 1 NPDES Program

Draft NPDES permits and fact sheets:

http://www.epa.gov/region1/npdes/draft_permits_listing_ma.html

Final NPDES permits and fact sheets:

http://www.epa.gov/region1/npdes/permits_listing_ma.html

Michigan DEQ

Phosphorus Limits and Implementation in Michigan. Power point presentation at Region 5-State NPDES meeting, May 4, 2010.

Sorrano, et al., 2008. *A framework for developing ecosystem-specific nutrient criteria: Integrating biological thresholds with predictive modeling.* Limnol. Oceanogr., 43(2): 773-787.

Wisconsin DNR

Chapter NR 217, Subchapter III, Wisconsin Administrative Code, Effluent Standards and Limitations For Phosphorus. <http://legis.wisconsin.gov/rsb/code/nr/nr217.pdf>

Ohio EPA

Association Between Nutrients, Habitat, and the Aquatic Biota in Ohio Rivers and Streams. Ohio EPA Technical Bulletin MAS/1999-1-1, available at:
http://www.epa.state.oh.us/portals/35/documents/assoc_load.pdf

Models

Dynamic models

SPARROW:

<http://water.usgs.gov/nawqa/sparrow/>

AQUATOX:

<http://www.epa.gov/waterscience/models/aquatox/>

Klamath River TMDL Models:

http://www.swrcb.ca.gov/northcoast/water_issues/programs/tmdls/klamath_river/100927/staff_report/04_Ch3_Analytic_Approach.pdf

CE-QUAL-W2:

<http://www.ecy.wa.gov/biblio/0403006.html>

Physical models

MERL:

<http://www.gso.uri.edu/merl/merl.html>

Steady-State models

Great Bay:

http://des.nh.gov/organization/divisions/water/wmb/coastal/documents/gb_nitro_load_analysis.pdf

BATHTUB:

<http://www.wes.army.mil/el/elmodels/emiinfo.html>

<http://cwam.ucdavis.edu/pdfs/BATHTUB.pdf>

QUAL 2K:

<http://www.epa.gov/athens/wwqtsc/html/qual2k.html>

<http://www.epa.gov/athens/wwqtsc/QUAL2K.pdf>

Vollenweider:

http://www.lwa.org/des_report/htm/vollenweiderphosphorusloadingandsurfaceoverflowwaterrelationship.htm

Water quality criteria:

EPA Gold Book Quality Criteria For Water 1986:

<http://www.epa.gov/waterscience/criteria/goldbook.pdf>

EPA recommended CWA Section 304(a) numeric nutrient criteria:

<http://water.epa.gov/scitech/swguidance/waterquality/standards/criteria/aqlife/pollutants/nutrient/>